

Banksia recurvistylis (Proteaceae), a new species from Western Australia

Kevin R. Thiele

Western Australian Herbarium, Department of Environment and Conservation,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Email: kevin.thiele@dec.wa.gov.au

Abstract

Thiele, K.R. *Banksia recurvistylis* (Proteaceae), a new species from Western Australia. *Nuytsia* 19(2): 277–281 (2009). *Banksia recurvistylis* K.R.Thiele is described to accommodate anomalous populations previously referred to *B. meganotia* (A.S.George) A.R.Mast & K.R.Thiele. The new species differs from *B. meganotia* in its habit and flower and leaf dimensions, and is geographically disjunct. Both *B. meganotia* and *B. recurvistylis* have relatively restricted distributions and are of conservation significance.

Introduction

Banksia L.f., including the former genus *Dryandra* R.Br., comprises 212 taxa distributed in south-western, eastern and northern Australia with one species extending to Papua New Guinea and adjacent parts of Indonesia. The centre of species diversity is in south-west Western Australia, particularly in areas with sandy and lateritic soils. *Dryandra*, long established as a separate genus, was included in *Banksia* by Mast & Thiele (2007) as it is phylogenetically nested within it.

Banksia meganotia (A.S.George) A.R.Mast & K.R.Thiele was described by George (1996, as *Dryandra meganotia*) in the small series *Capitellae* A.S.George along with *B. serratuloides* (Meisn.) A.R.Mast & K.R.Thiele. It is restricted to an area in the Avon bioregion (Department of the Environment, Water, Heritage and the Arts 2008) east of Narrogin, between Jitarning, Harrismith and Yilliminning Rock, in sand and clay-sands over laterite, sometimes associated with granite rocks. It forms a spreading to erect shrub to 1 m high from a lignotuber, and has more or less columnar stems densely clothed with leaves borne on short, lateral shoots. The lignotuber allows the plant to resprout after fire.

Plants collected in Wandering and Monadnocks Conservation Parks by Fred and Jean Hort between 2003 and 2008 were originally referred to *B. aff. meganotia* and subsequently to the informal phrase name *B. sp.* Wandering (F. & J. Hort 3181). These populations are disjunct by c. 80 km to the north-west of the nearest populations of *B. meganotia*, and are in the Jarrah Forest bioregion. They differ from *B. meganotia* in being fire-killed, non-lignotuberous, taller shrubs with significantly larger flowers and leaves. They are described here as the new species *B. recurvistylis* K.R.Thiele.

Taxonomy

Banksia recurvistylis K.R.Thiele, *sp. nov.*

Banksiae meganotiae affinis sed lignotubere carenti, floribus et foliis longioribus differt.

Typus: Wandering, Western Australia [precise locality withheld for conservation reasons], 10 November 2008, *F. Hort* 3369 (*holo:* PERTH 07702604; *iso:* CANB, K).

Banksia sp. Wandering (F. & J. Hort 3181), Western Australian Herbarium, in *FloraBase*, <http://www.florabase.dec.wa.gov.au> [accessed 20 December 2008].

Non-lignotuberous *shrubs* to *c.* 2 m high and 3 m wide, single-stemmed at the base. *Stems* shortly tomentose. *Leaves* pinnatipartite, densely crowded on short shoots lateral to the main stems, 8–11 cm long, 22–35 mm wide, the midrib usually curved; lobes 10–14 each side, at *c.* 70°–90°, very narrowly triangular, acute, pungent, the margins revolute, sparsely pilose when young with long, straight hairs, soon glabrous adaxially, densely woolly abaxially, the hairs closely filling the grooves between the midrib and margins. *Inflorescences* on short, lateral branches; *involucral bracts* narrowly ovate to linear, obtuse, pilose abaxially and on the margins, ± glabrous adaxially except for a few short hairs towards apex, the innermost 20–30 mm long; floral bracts linear, 6–10 mm long, loosely hirsute. Flowers 25–40 per head, pale yellow; *perianth* 32–38 mm long, silvery-pilose above, glabrous at base; limb 8–10 mm long. *Pistil* 44–55 mm long, evenly strongly curved outwards after anthesis, hirsute in lower third, glabrous distally; pollen presenter 4–5 mm long, narrowly cylindrical, obscurely ribbed. *Follicles* 4–6 mm long, densely brown-pilose. (Figures 1, 2)

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 9 Dec. 2003, *F. Hort* 2143 (PERTH); 19 Jan. 2008, *F. Hort* 3180 (PERTH); 20 Jan. 2008, *F. & J. Hort* 3181 (PERTH); 23 Jan. 2008, *F. Hort*, *J. Hort* & *B. Hort* 3182 (PERTH); 25 Jan. 2008, *F. & J. Hort* 3187 (PERTH).

Distribution. Known from five populations, one in the Wandering Conservation Park east of Bannister, and four in a small area of the Monadnocks Conservation Park south of Sullivan Rock. The Monadnock populations are spread over a distance of *c.* 4 km, while the Wandering population is *c.* 40 km distant to the south-east (Figure 3).

Habitat. All known populations are found in or adjacent to heath patches on shallow, lateritic soils associated with granite outcrops, within jarrah-marri forest. Characteristic associated species include *Allocasuarina humilis*, *Andersonia* spp., *Grevillea bipinnatifida*, *Hakea undulata*, *H. trifurcata*, *H. petiolaris*, *Isopogon dubius*, *Verticordia* spp. and *Xanthorrhoea preissii*.

Phenology. Flowers in November and early December

Conservation status. *Banksia recurvistylis* was listed as Priority Two under the informal synonym *Banksia* sp. Wandering (F. & J. Hort 3181) by Atkins (2008); this remains appropriate. Population estimates at each population range from 70 to 600 plants. All populations are in gazetted Conservation Parks; however, all areas are potentially threatened by *Phytophthora cinnamomi* dieback which is prevalent in the area.



Figure 1 – Holotype of *Banksia recurvistylis* K.R.Thiele (PERTH 07702604), scale = 5 cm. Note that the precise locality for this conservation taxon has been blurred.



Figure 2. *Banksia recurvistylis*. A – individual shrub (the two stems visible arise above ground level from a non-lignotuberous base); B – typical habitat on edge of a granite sheet (Fred Hort, one of the discoverers of the species, provides scale in front of a dense patch of *B. recurvistylis*); C – inflorescences; D – patch of large, senescent individuals on granite sheet in jarrah forest. All photographs – J. Hort.

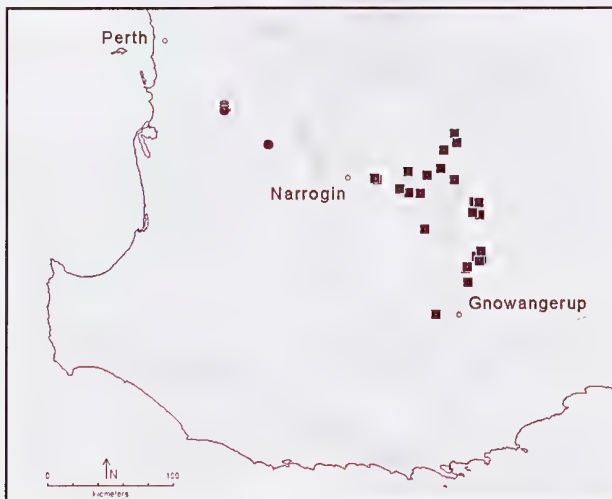


Figure 3. Distribution of *Banksia recurvistylis* (●) and *B. meganotia* (■) in south-west Western Australia.

Affinities. *Banksia recurvistylis* resembles (and is almost certainly closely related to) *B. meganotia*, sharing with it similar leaf morphology, strongly recurved styles after anthesis (an unusual feature in the genus), very small follicles and seeds with poorly-developed wings. It differs from that species in being disjunctly larger in all its parts than *B. meganotia*; the two taxa can be distinguished using the measurements in Table 1.

Table 1. Morphological differences between *Banksia recurvistylis* and *B. meganotia*

| | <i>B. recurvistylis</i> | <i>B. meganotia</i> |
|--------------------------------|-------------------------|---------------------|
| Lignotuber | Absent | Present |
| Leaves (length × width) | 8–11 cm × 22–35 mm | 3–7 cm × 10–25 mm |
| Perianth (length) | 32–38 mm | 22–23 mm |
| Pistil (length) | 44–55 mm | 26–30 mm |

Etymology. From the Latin *recurvus* (curved backwards) and *stylus* (a style), in reference to the styles that are distinctly recurved in older flowerheads.

Acknowledgments

I would like to acknowledge Fred and Jean Hort for their diligence and expertise in surveying the flora of the Darling Range for new and noteworthy species. They brought this species to my attention, showed it to me in the field and collected excellent specimens from all known populations. Juliet Wege, Kelly Shepherd and an anonymous reviewer provided invaluable comments on the manuscript.

References

- Atkins, K.J. (2008). *Declared Rare and Priority Flora List for Western Australia*. (Department of Environment and Conservation: Kensington, WA.)
- Department of the Environment, Water, Heritage and the Arts (2008). *Interim Biogeographic Regionalisation for Australia (IBRA), Version 6.1*. <http://www.environment.gov.au/parks/nrs/science/bioregion-framework/ibra/index.html> [accessed 8 May 2008]
- George, A.S. (1996). New taxa and a new infrageneric classification in *Dryandra* R.Br. (Proteaceae: Grevilleoideae). *Nuytsia* 10(3): 313–408.
- Mast, A.R. & Thiele, K.R. (2007). The transfer of *Dryandra* R.Br. to *Banksia* L.f. (Proteaceae). *Australian Systematic Botany* 20(1): 63–71.
- Western Australian Herbarium (2008). *Florabase – The Western Australian flora*. Department of Environment and Conservation: <http://florabase.dec.wa.gov.au> [accessed 20 December 2008]